

## INTRAOCULAR LENS CONSTRUCTION

### CROSS REFERENCE TO RELATED APPLICATIONS

This is a continuation-in-part of copending application Ser. No. 512,312, filed July 8, 1983, now abandoned, which is a continuation of application Ser. No. 392,511, filed June 28, 1982, now abandoned, which was a continuation of application Ser. No. 218,694, filed Dec. 22, 1980, now abandoned.

### BACKGROUND OF THE INVENTION

#### 1. Field of the Invention:

The invention generally relates to intraocular lenses and is particularly directed to an intraocular lens implant assembly for facilitating insertion and positioning, as well as general handling, of the lens during surgery.

#### 2. Background Information:

Intraocular lenses are widely used for the correction of aphakia, to wit, lack of the human crystalline lens. Following the removal of a cataract by any of the known techniques, such as intracapsular, extracapsular, phacoemulsification and other known methods, intraocular lenses are positioned for optical correction to replace the human lens and to stay within the eye as a permanent implant.

A variety of intraocular lens designs have previously been proposed, as evidenced by the disclosures in the prior art patents listed below. These lens designs vary both with regard to the shape and configuration of the optical lens body proper and the mounting or fixational means for enabling the lens body permanently to remain in a fixed and stable position within the eye. Generally, known intraocular lens constructions comprise an optical lens body proper, usually composed of a suitable plastic or glass, and a number of mounting legs or fixation members attached to the lens body and generally referred to in the profession as haptics. The haptics are usually flexible and of plastic and extend away from the lens body. In the ultimate position of the lens body, the haptics contact and bear against portions of the eye anatomy, thereby supporting the lens body in a stable and permanent position.

Considering the extremely small size of such lens constructions, it will be appreciated that considerable dexterity is required of the surgeon to manipulate, insert and position the lens construction within the eye. In order to assist the surgeon in this respect, a variety of instruments and tools have previously been proposed and used to facilitate implantation of the artificial lens into the eye in a manner avoiding or reducing complications or damage to the eye. Various surgical techniques thus allow the surgeon at the operating table to remove a sterile intraocular lens from a package and to prepare and affix it in some suitable way to an insertional device such as, for example, forceps. After the lens has thus been gripped by the tool, the surgeon inserts the lens into the eye through a suitable corneoscleral incision and, in some insertional methods, through the pupil. Since the haptics, by necessity, normally extend away from the lens body proper, they have, of course, a tendency to interfere with both the insertion and the subsequent positioning of the lens and may even damage eye tissue during the manipulation. Moreover, the extended haptics require a larger incisional opening than would be required if the haptics were not to extend away from the lens body. Some surgeons have attempted to over-

come some of the difficulties described above by "loading" at least one of the haptics during surgery and prior to insertion of the lens into the eye, by compressing the haptic in a direction towards the lens body. This is done with the help of an insertional device which thus pushes the haptic onto the lens body while the lens is inserted. This, however, requires manual dexterity of considerable extent which more often than not exceeds the skill possessed by the surgeon.

In addition, such pre-insertion manipulations increase the danger of contamination and dropping of both the lens and the insertional device. Further, such procedures may result in improper fixation of the lens and in breakage of either the lens or the haptics.

#### 3. Description of the Prior Art:

The following patents relate to intraocular lens constructions and/or methods for positioning such lenses within the eye. However, none of these patents discloses or suggests an intraocular lens assembly of the kind disclosed and claimed herein.

#### U.S. Patents Nos.:

4,056,855  
4,092,743  
4,159,546  
4,014,049  
3,991,426  
4,053,953  
3,866,249  
4,118,808  
4,122,556  
4,257,521  
4,190,049  
4,249,271

### OBJECTS OF THE INVENTION

It is the primary object of the present invention to provide an intraocular lens construction which facilitates handling, insertion and positioning of the lens during surgery.

It is another object of the present invention to provide an intraocular lens assembly which enables insertion of the lens into the eye in a safe and readily accomplished manner and through a smaller incision than has previously been possible.

Another object of the invention is to provide an intraocular lens construction which may be readily inserted through the pupil.

Another object of the present invention is to provide a prepackaged intraocular lens assembly which effectively prevents contamination during surgery.

Generally, it is an object of the invention to improve on the art of intraocular lens constructions and the manner in which they are to be implanted into the eye, as hitherto practiced.

### SUMMARY OF THE INVENTION

Briefly, and in accordance with the invention, an intraocular lens construction comprises a lens body or "optic" of a suitable plastic, glass or the like, and a plurality of flexible, spaced haptics. One end of each haptic is permanently attached to the lens body near its periphery, while the other, free end of each haptic which, normally, extends away from the lens body, is capable of being "loaded" or compressed onto the lens body and temporarily held thereon by suitable holding